

SUBGRADE AND BASE CONSTRUCTION**63-09.0100 SUBGRADE**

- .0110 Preparation of Subgrade** - The roadway subgrade supports the base and surface courses. A good subgrade allows good rideability and durability and often a longer life. The project engineer or inspector should be satisfied that the subgrade is in satisfactory condition before the base or surfacing operations are allowed to proceed. The contractor shall construct subgrade in accordance with Section 207 of the Standard Specifications and any applicable special notes included in the project documents.
- .0120 Checking Subgrade** - Check the subgrade with a template or stringline to within tolerances of Subsection 204.03.10 of the Standard Specifications. Direct the contractor to correct areas of yielding or unstable material and backfill with approved materials. Compact the subgrade to a uniform density throughout, according to the density and moisture control requirements of Subsection 206.03.03. After the subgrade is compacted to the required density, should it lose its density for any reason, the contractor shall re-compact the subgrade to the required density. Subgrade material below optimum moisture may require scarifying, added water, and manipulation to the required depth before compaction. Subgrade above optimum moisture may require drying and/or scarifying before compaction. Compact the subgrade in accordance with Subsection 206.03.03 of the Standard Specifications. Test the subgrade in accordance with the Division of Materials Manual on Field Sampling and Testing Practices, applicable plan notes, and specifications. Do not allow the contractor's equipment to rut or break the density of the subgrade before the applying the base course. Caution should be exercised in permitting continuous hauling over sandy soils or wet subgrade constructed of silt or clay soils, as this could result in breaking density.
- .0130 The Project Engineer** - The Project Engineer shall give particular attention to ensure that the materials incorporated into the subgrade construction meet the plans and specification requirements for select CBR material or rock subgrade as specified. Plans that require the use of select material in the subgrade should be reviewed in detail early in the life of the contract. The contractor, in consultation with the R.E may deem it necessary to stockpile rock or CBR material to meet these requirements. A clear understanding should be reached with the contractor as to how these materials will be handled and saved for specified use before they are wasted or otherwise utilized and become unavailable. It is undesirable to have a situation where the contractor have to go to a waste site to recover wasted rock or even obtain borrow to meet select material requirements.
- .0140 Subgrade Inspector's Checklist** - The foundation on which the subgrade material is to be placed should be checked for desired width and elevation as

determined by the plan cross-sections with unstable and yielding areas corrected prior to subgrade construction.

Review the contract plans and proposal to determine the subgrade requirements. The subgrade material should be sampled and tested to ensure it meet these requirements prior to being incorporated into the construction. At the same time, proctor densities should be obtained for later compaction testing.

When subgrade chemical stabilization is required, it may also be necessary to sample the subgrade for testing to determine application rate and depth. This should be done as soon as feasible before the addition of any chemicals to the sub-grade material.

The subgrade should be constructed to desired line and grade in accordance with the plan cross-sections and all undesirable materials such as roots, large rocks, etc. should be removed.

Perform required density testing to ensure proper compaction. Check for yielding and unstable areas and make necessary corrections. Areas of failing density should be reworked until desired compaction is obtained.

Check the subgrade for proper drainage to ensure that no water will be trapped on the subgrade surface and ensure that the subgrade is protected from unnecessary vehicular traffic. Damaged subgrade should be corrected as soon as possible by reworking to obtain the desired grade and density.

Check the final grading of subgrade to specified tolerances by string lining.

63-09.0200 DENSE GRADED AGGREGATE BASE (DGA) & CRUSHED STONE BASE (CSB)

.0205 General - Dense graded aggregate base or crushed stone base shall be applied in one or more courses on an approved subgrade and shaped to the required typical section and alignment. The base shall be plant mixed as required by the Specifications, Subsection 302.03.01.

.0210 Mixing and Transporting - The aggregate and water shall be thoroughly mixed in an approved type mixer at the plant. The mixed material is then transported to the project in such a manner that the material, when placed, will be of uniform gradation and moisture content. Methods of transportation should be such as to not cause undue segregation. Canvas covers will be required on trucks during transportation whenever the time between loading and spreading exceeds thirty minutes to minimize early drying of the mixture. The mixture shall be placed with an approved mechanical spreader and brought to a typical cross-section and

grade without segregation. The inspector should make frequent checks on the mix and make any necessary adjustments in order to maintain optimum moisture in the mix. Wet the subgrade or previous base layer before placing base material.

.0220 Base with Shoulder Construction - When the shoulder material is of earth, a portion of the adjacent shoulder shall be compacted concurrently with each course of granular base as specified in Subsection 209.03.02 of the Standard Specifications. Prior to compaction of each course of the aggregate base, shoulder material shall be built firmly against the aggregate base to a width of not less than 18 inches and to such height that after compaction the partial shoulder width so compacted shall conform to the height of the base course. Compaction of the base material shall be in accordance with Subsection 302.03.04 of the Standard Specifications.

.0230 Placement and Compaction - The inspector will observe the mix carefully during the compaction and correct any locations of segregation. He will also check the as-built section with a template or to ensure maintenance of the proper cross-section. Any variation from line, grade, or typical section shall be re-shaped with a grader and additional materials added where necessary.

- **Compaction:** The base shall be compacted with a 16-ton pneumatic roller or 8-ton steel wheel vibratory roller. Regardless of thickness, establish a 500-foot control strip of full width at the beginning of the base course construction for each lift. The contractor shall use the same equipment and procedures intended for the remainder of the base course. The control strip is used to determine the level of compaction needed to achieve optimum density in the field. After 2 passes of compaction equipment, DOH personnel will use 3 random locations in the control strip and take density measurements in accordance with KM64-004-03 and in accordance with Subsection 302.03.04 of the Standard Specifications. Compact the control strip until no further increase in density is obtained.

.0231 Control Strip - The base material will be visually inspected after each pass to determine if the aggregate is being crushed, cracked, shoved, or shows signs of other distress. If a problem occurs, the contractor will need to use other equipment or methods to achieve satisfactory results. After a satisfactory control strip has been established, 10 random field densities & moisture readings in the control strip will be taken. The average of the 10 tests will be used to obtain the target density for the base. The moisture readings are used if problems obtaining proper density occur. The actual moisture should be 2% (+/-) of the moisture content obtained during target density.

.0232 Density Test by Lots - The remaining area of base material will be divided into 2500 square yard lots. Each lot will further be divided into 5 sub lots. A density measurement will be taken at one random location within each subplot. The average density of the 5 sublots taken is required to measure 98% of the

target density. No individual subplot density shall be less than 95% of the target density. If the average density or an individual density does not meet the requirements, the laydown operation shall be stopped and the area re-compacted or reworked until the pre-mentioned density requirement is met.

Each lift of aggregate base shall be maintained to uniform grade and cross section. If a final lift is to be trimmed with an automatic grading machine, it should be constructed 1/2 – 1” inch higher before trimming. After the final cut, wet and roll the base with a static roller, after which density test(s) will be retaken.

If, for any reason, density of the base material is lost, the material shall be removed or reworked to again obtain the required density. If there is any indication that the integrity of any course has deteriorated, additional tests shall be made prior to placing the next course and the required density shall be reestablished. Restrict contractor's hauling equipment using previously placed aggregate base course when possible. Traffic, space and time may require some hauling across base course but the contractor should ensure base is shaped, rolled and meets density requirements before placing next course.

No direct payment will be made for any materials, labor or equipment required to maintain or repair any course of aggregate base prior to placing the next course.

- .0240 Shoulder Drains** - Shoulder drains, as required by the plans, or specifications, shall be constructed in accordance with Subsection 209.03.02 of the Standard Specifications. No permanent lateral drains shall be constructed until the entire earthwork portion of the shoulder construction is complete. Temporary drains shall be utilized as directed by Subsection 209.03 of the Specifications.
- .0250 Moisture Content** - When water is added at the pugmill, add in only such amounts as is absolutely necessary to obtain density.
- .0260 Aggregate Base Inspector's Checklist** - The Inspector should be thoroughly familiar with the applicable portion of Division 300, titled *Aggregate Base Courses* in the *Standard Specifications for Road and Bridge Construction* as well as plan requirements and required testing and verification procedures.

Verify with the District Materials Engineer that the aggregate base material has been approved at the source and that the pugmill has been approved for operation.

Inspect for proper transport of materials and discuss weighing procedures with the contractor or supplier. Weighing procedures are discussed elsewhere in this chapter.

Inspect for proper equipment for placement and compaction. The material should be placed with an approved mechanical spreader to avoid unnecessary segregation.

Inspect frequently to ensure that aggregate base is arriving on the project at the proper moisture content.

Take frequent depth checks to determine that the aggregate base is being spread at the depth desired to the proper line and grade to ensure the correct thickness after compaction.

Prior to compaction of each course of aggregate base, shoulder material shall be built firmly against the DGA to a width of not less than 18inches and to such height that after compaction the partial shoulder width so compacted shall conform to the height of the base course. Check for temporary or permanent shoulder drain construction as required.

Check that the contractor takes adequate precaution to ensure that the material trimmed during final grading operation does not become contaminated and can be incorporated in subsequent aggregate base construction. Waste of the trim material should not be permitted.

Check the final grading of the aggregate base to the specified tolerance in accordance with the plan typical section by stringline.

Density testing should be performed on each course of material and the compaction approved prior to placing subsequent courses or surface construction.

Request the contractor to protect the aggregate base from unnecessary vehicular traffic. Should the aggregate base surface deteriorate or be otherwise damaged, additional material should be added, wetted, and compacted to a satisfactory surface and density.

63-09.0300 DRAINAGE BLANKETS

.0305 General - Pavement drainage blankets remove water from pavement structure and transfer water to pipe or edge of shoulders. A drainage blanket may, depending on plan requirements, be untreated aggregates, asphalt treated aggregates, or Portland cement treated aggregates. Of the 3 types, asphalt treated is probably the most used with untreated a close second. Generally, the construction requirements for drainage blankets can be found in Section 303 of Standard Specifications.

A pavement drainage blanket provides an excellent method of collecting and draining water from the pavement structure. It is particularly effective when used in combination with an internal perforated pipe system. A blanket is generally

placed on some type of water proof layer which is designed to aid in the collection of surface water penetrating the pavement structure without permitting the passage of water into the subgrade. This layer may be a chemically treated subgrade or an intermediate layer of stabilized aggregate base or DGA. The Project Engineer is cautioned that a project with a pavement drainage blanket should also have a waterproof layer required by the plans and set up in the contract. If this is not the case or there are questions, the Project Engineer should contact the District Construction Office for guidance.

- .0310 Perforated Pipe Drainage System** - The perforated pipe system normally installed with drainage blankets is particularly susceptible to damage when used with the untreated blanket. The Project Engineer must ensure that the contractor follows the plans and proposal and uses due care when working in the vicinity of the pipe. Even then, the perforated pipe should be checked for damage and replaced if necessary. Proper function of the perforated pipe is critical to the entire drainage installation and every effort should be made to see that the pipe system is intact before it is covered with the pavement structure. The pipe drainage system is required to be monitored in accordance with Subsection 704.03.02 before placement of final surface course to ensure integrity of system.
- .0320 Untreated Drainage Blanket (UDB)** - Size No. 57 aggregate is normally used for this drainage blanket. This material must, in general, be laid with an asphalt paver or it could be spread with an autograde machine such as a CMI. The UDB should be placed in accordance with subsection 303.03.02(A) of the Standard Specifications. A spreader box, such as used with DGA, will not work well. Reasonably accurate grade control is necessary since the aggregates must be compacted to grade immediately following the laying operation. Manipulating this loose rock to any great extent with a grader is not very practical or efficient; however, a small grader maybe required in combination with a roller to help keep the rock level and tight until it is covered with the following pavement course.
- .0330 Asphalt Treated Blanket (ATDB)** - The gradation of the aggregates in this drainage blanket is specified in Section 805. The blanket must be laid with a asphalt paver meeting the requirement of Subsection 403.02.07 of the Standard Specifications and it must meet the surface tolerances specified in Subsection 403.03.11 for base courses. The ATDB should be placed in accordance with subsection 303.03.02(B) of the Standard Specifications. Refer to Chapter 10 of this manual for additional guidelines relative to asphalt pavements. Normal compaction requirements and thickness checks by coring apply to asphalt concrete pavements constructed on asphalt treated drainage blankets.
- .0331 Rideability** - The asphalt treated drainage blanket can significantly enhance the rideability of a pavement project when constructed properly. The asphalt paver must be operated with full electronic grade controls; however, superior results have been obtained when it is operated on a graded reference line.

Review the discussion on this subject in Chapter 10, Section 63-10.0700 for additional information.

- .0340 Cement Treated Drainage Blanket (CTDB)** - Mixing and hauling shall be in accordance with Section 501 (PCC Pavement). Use spreading, consolidation and finishing equipment in conformance to Section 501. The ATDB should be placed in accordance with subsection 303.03.02(C) of the Standard Specifications. The Project Engineer may approve alternate methods upon demonstration of a 3000 square yard test strip.

The material will be compacted with a 10 ton steel wheeled roller, unless the Project Engineer determines consolidation is acceptable without rolling. If the contractor uses a standard vibratory slipform paver, rolling should not be needed. The CTDB should be covered with 4-mil plastic or curing membrane for 3 days. Placement of CTDB should be only if ambient temperature is 45° F and rising.

63-09.0400 WEIGHING OF MATERIALS

- .0405 General** - In accordance with Subsection 109.01.02 of the Standard Specifications, the contractor or material supplier shall furnish all personnel necessary to perform weighing, including tare weighing, and prepare required records. In this respect, all references to weigher, hereinafter, refer to the either the contractor's or the material supplier's representative.

The procedures described herein apply to all materials measured by weight for payment.

- .0410 Automatic Printing Scales** - All aggregate sources and hot-mix asphalt plants shall be equipped with automatic printing scales with some minor exceptions as noted in Subsection 109.01.03 of the Standard Specifications.

- .0411 Truck Tare Weights** - When it is necessary to use a tare sheet to record truck tare weights, Form TC 63-31, *Weighman's Tare Check Report*, shall be used. This form is shown as Exhibit No. 63-9-1.

In the event the automatic printing scales are designed and utilized so as not to require tare weights to compute net weight, the Project Engineer shall obtain the tare weight of every truck to be used in hauling prior to hauling on the project. This tare weight will be used in meeting the requirements of Subsection 105.10, Hauling, of the Standard Specifications. Unless required by the Project Engineer, it will not be necessary to tare the trucks again when the tare is not used in the pay quantity calculations. Refer to Subsection 109.01.03(A)(2) of the Standard Specifications.

The Contractor (or material supplier) shall prepare the daily tare sheet (when used) and it shall be signed by the plant manager, certifying that the tare data is correct.

The tare weight of each truck involved in hauling material must be checked in accordance with Subsection 109.01.03 of the Standard Specifications.

The Project Engineer should monitor this procedure closely.

.0412 Weigh Tickets - The automatic printer shall produce a weigh ticket for each load which contains all information in digital form that is on the Department's conventional weigh ticket. An example of this ticket, Form TC 63-23, is shown as Exhibit No. 63-9-2.

The necessary information, to be printed on the tickets, is as follows. It is noted that this is the minimum required data and does not limit the information that may be printed at the contractor's option.

1. Supplier Name - In the case where a company has more than one plant or quarry, the specific source should also be identified.
2. Customer - KY. D.O.H.
3. County, Project Number, Project Code Number (PCN)
4. Type of Product - Bit. Base, D.G.A., C.S.B., etc.
5. Date and Time
6. Load Number - Tickets for each project shall have a sequential load number for each load. These numbers may be filled in manually but indelible ink (ball point, etc.) must be used. *Sequential load numbers are critical to the necessary checking of tickets in the Project Engineer's office. It would be impossible to account for missing loads and/or tickets without sequential numbers.*
7. Truck Number
8. Weight - May be shown in tons in lieu of pounds provided the weight is shown to at least .01 ton. If the gross and tare weights are used in the computation of net weight, they must be shown on the ticket. It is preferable that gross and tare always be shown on all tickets, however, they may be waived when they do not enter into the computation and the printing equipment does not have the capability. Metric weights shall be used, when required, with similar limits as prescribed for English weights.

9. Certification - A certification statement similar to that presently in use on Department tickets must be provided for the signature of the field ticket taker. To make the ticket more versatile, the word "Owner" may be used in the certification in lieu of the name "Department of Highways".
10. Signatures - Lines for the signature of the plant weigher and the signature and receiving time of the field ticket checker must be provided.

It is preferable that these automatic printer tickets be prepared in 4 part NCR with colors similar to that customarily used by the Highway Department. That is, the original ticket is white, the duplicate ticket is green, the triplicate ticket is yellow and the quadruplicate ticket is pink. It is recognized that, depending on the capabilities of the equipment, multiple layered tickets may be impractical, as may be the colors. The Department is flexible on this, however, there are certain requirements that are necessary and these are indicated below.

.0420 Preparation and Handling of Tickets - The following procedures are considered standard and must be followed as noted:

The weigh person will weigh materials, prepare, and sign weigh tickets in at least triplicate, indicating the time of day that the material was weighed. The contractor is required to provide the original to the Project Engineer.

The weigh person shall deliver the original and duplicate tickets to the truck driver at the time the material is weighed. A delivery of additional copies of the ticket to the driver is discretionary, but the original and one copy is required.

The Department of Highways' inspector will claim the original ticket upon delivery of the material to the job site and sign (Not initial) for the delivery in certification space, noting the time of delivery in the space provided. It is important that the inspector obtain all original tickets weighed out for the project. The original ticket, for those loads not qualifying for payment, should be claimed, declared "Void" and noted as to the appropriate reason.

A copy of the ticket is to be retained by the truck driver for the use of the contractor performing the work. The use of this ticket is discretionary with contractor or vendor, as mentioned above in (2).

Another copy of the ticket may be retained by the vendor or contractor at the end of each day's weighing operation for their records. This ticket is discretionary and may take the form of some other record.

.0430 Daily Summary – When a small quantity of material, such as millings are to be weighed at a location that do not have facilities for the printing of tickets the Daily Summary shall be prepared on the Department's form by the weigher or plant manager for each working day. This form is designated TC 63-12, and is shown as Exhibit 63-9-3. Preparation shall be in accordance with Section 109, titled "Measurement and Payment" of the Standard Specifications.

Form TC 63-12 contains a "Total Weighed" and a "Total Net Pay Quantity (Tons)" at the bottom of the form. The "Total Weighed" quantity is to be filled in by the Plant Manager. This is the amount certified by the plant manager in accordance with Subsection 109.01.03 (C) of the Standard Specifications. The "Total Net Pay Quantity (Tons)" quantity is filled in by the Project Engineer's office when the pay quantities are resolved for the day's hauling. This amount is entered in the "Item Quantity Record" as the pay quantity.

This Summary shall include the following items:

1. A list of all loads shipped that day
2. Truck number and load (or ticket) number for each load. The load or ticket number must be sequential for consecutive loads of a particular material to a specific project.
3. Net weight of each load
4. Total net weight shipped that day, supported by an adding machine tape.

NOTE: It is not necessary, with electronic scales and automatic printers, to run an adding machine tape on the gross or tare weights or on the net weights if a cumulative total is printed on each ticket or a computer printout at the end of the day will provide the data. An adding machine tape for net tonnage will be necessary in those cases where the equipment cannot carry such a cumulative total or furnish a computer printout. An adding machine tape will also be necessary in the event of equipment failure or the weighed interferes with the automatic functions. This adding machine tape is part of the Daily Summary and is the responsibility of the Plant Manager as specified in Subsection 109.01.03 (C) of the Standard Specifications.

A printout from a computer spreadsheet, not part of the Weighing System, is acceptable in lieu of the adding machine tape. To carry this a step further, the Summary complete with Certification Statement, etc. could be prepared on a computer spreadsheet for each day's run.

.0440 Resolution of Quantities and Payment - Determination of pay quantities will, in every case be based on the original tickets taken up on the job site. Material rejected for payment as discussed above in .0420(3) must be taken into account in this resolution.

.0441 Three Day submittal Time - In accordance with Subsection 109.01.02 of the Standard Specifications, the contractor has 3 working days to get the completed and signed daily summary and daily tare sheet to the Project Engineer. No tonnage will qualify for payment until these documents have been received and checked by the Project Engineer's office. There will not be any temporary payments with intent to resolve pay tonnage at a later date. Failure of the plant or supplier to get this information to the Project Engineer on a timely basis will result in delaying payment for the materials in question. This point should be discussed at the Pre-Construction Conference.

.0442 Resolving Quantities - Any differences between "Total Weighed" and "Total Net Pay Quantity" must be resolved for the day's run. At the option of the Engineer, this would be done either by:

Using the Summary Sheet (TC 63-12) to show the resolution. "No Pay" would be deducted from the "Total Weighed" to determine the "Total Net Pay Quantity". The tare sheet would be checked against the tare weights used, when applicable. A short reason should be included for no pay quantities. An adding machine tape would be necessary to support computations.

Preparing a computer printout (spreadsheet) to reflect each Daily Summary showing that either the "Total Weighed" as certified by the Plant Manager is correct or the "Total Weighed" followed by a list of tonnage to be deducted and a net total which will be the "Total Net Pay Quantity" for the day. The tare sheet would be checked against the tare weights used, when applicable. A short reason should be included for no pay quantities.

Using the last ticket which shows the total for the day and indicating on this ticket any loads that were rejected with a corresponding, explanatory reason. The rejected amount could then be subtracted from the daily total shown on the last ticket to give a total net pay quantity.

The "Total Net Pay Quantity" as determined by either (1) or (2) above would be the tonnage entered into Site Manager for payment. It shall not be adjusted for penalties of any nature including Thickness Tolerances. Penalties distort the daily weighed quantities and lead to confusion and difficulties in checking the resolution of weighed quantities so they will be addressed as line item adjustments elsewhere in the estimate.

- .0450 Preparation of Final Pay Estimate** - See Chapter 12 of this manual for information pertaining to preparation of the Final Estimate when items paid by the ton are involved.

63.09.0500 SUBGRADE STABILIZATION BY CHEMICALS

- .0505 General** - The contract will specify if Chemical Stabilization is to be used. Normally, this work involves roadbed stabilization by either mixing Portland cement or hydrated lime with the roadbed material. Subgrade prepared for chemical stabilization should be free of rocks of a size specified by the plans or the Standard Specifications Section 208.
- .0510 Preparation of Existing Roadway** - The roadway should be shaped to the plan grade, line, and cross-section. The roadway subgrade should be free of organic material, such as roots, and any rocks larger than 4 inches to a depth below the stabilization limits. The equipment used to mix the soil and stabilizer (lime or cement) does not operate effectively with rock fragments. The Chemical Stabilization quantities established in the contract are estimates. Actual field samples of the subgrade material shall be submitted to the Division of Materials to determine the optimum amount of stabilizer (cement or lime). Since this process may take a week, samples of the subgrade should be taken and submitted as soon as the contractor has placed the material.
- .0520 Staking for Chemical Stabilization** - Staking of the subgrade to prepare for chemical stabilization requires more than a routine approach on the part of the contractor. Generally, offset grade stakes work reasonably well when set no further than 50 feet apart. It may also be necessary to set additional stakes out in the roadbed at transverse break points (as in super elevations) or when the roadbed is so wide as to make the transfer of grades from the shoulder offset stakes impractical or inaccurate. The problem arises with the stakes set out in these locations because the traveling rotary pulverizing mixers, used to mix the chemicals with the roadbed material, destroy all stakes set in the roadbed. These grade stakes must then be reset to enable the grade to be brought into specification tolerances. Timing is critical in resetting these stakes, since the staking must follow closely behind the compaction operation and the entire stabilization process must be completed within specified time constraints. It is suggested that the Project Engineer discuss staking procedures with the contractor in some detail. The Project Engineer should also provide for grade checking to establish the accuracy of the contractor's work.
- .0530 Grade** - A certain amount of swell in the subgrade is to be expected after the addition of lime or cement. Provisions are made to allow grade adjustments for stabilizer. The subgrade to receive stabilization will be placed 0.1 foot below finished subgrade elevation, in accordance with Subsection 204.03.10 (5). Swell refers to an increase in volume and is caused by the introduction of additional material into a compacted subgrade. For instance, if 10% cement is added to a

compacted subgrade 12 inches deep, it is not reasonable to expect this mixture to be compacted and restored to the same grades as before the cement was added. Another reason for swell is the chemical reaction between the subgrade material and the chemical additive. It is difficult to predict the amount of swell since it is influenced by many factors such as the amount and type of chemicals being added, the depth of treatment, the type of subgrade material, etc. The Division of Materials, Geotechnical Section can best advise on the amount of swell to expect after running required tests on the subgrade material. In the natural course of events, this information may not be available until after the subgrade is initially cut to grade, so grade adjustments may have to be made without this data.

On surfacing projects, when the subgrade has been prepared under another contract, it should have been prepared using the target elevation discussed above if it is known that chemical stabilization is to be incorporated. If the grade is not prepared in this manner and chemical stabilization is to be used, consideration should be given to adjustments in the plan grades.

When a project includes grade, drain and surfacing and the subgrade is to be chemically stabilized, subgrade elevations should be established on the low side of the plan grade, i.e. the *target* elevation discussed above, to allow for the possibility of swell.

Regardless of any adjustments, the subgrade must always be constructed to the cross section tolerances specified in Subsection 204.03.10 (6) of the Standard Specifications.

One procedure that should never be used is to go back on a chemically stabilized grade after it has been finished and start trimming an otherwise acceptable subgrade in an effort to restore plan grade. If the discrepancy is so bad as to raise this consideration; consult with the District Construction Office and the Division of Construction on corrective measures. Higher grade would eliminate wasting good subgrade.

TABLE OF EXHIBITS

CHAPTER NINE

<u>TITLE</u>	<u>EXHIBIT NUMBER</u>
Weighman's Tare Check Report (TC 63-31)	63-9-1
Truck Delivery Receipt & Weight Ticket (TC 63-23)	63-9-2
Daily Report of Weighed Materials (TC 63-12)	63-9-3

SIGNED BY _____
WEIGHMAN

*Quadruplicate copy to Vendor
or Contractor at end of day*

*Triplicate copy retained by weigher -
Goes to Project Engineer at end of day*

FORM TD 63-23(REV 5-78)

**COMMONWEALTH OF KENTUCKY
DEPARTMENT OF TRANSPORTATION**

TRUCK DELIVERY RECEIPT & WEIGHT TICKET

Date _____ Ticket No. **131403**

U.P.N. _____

Contractor _____

Maint. TCT No. _____ County _____

Kind of Material: _____

Source of Material _____

Truck No. _____

Gross _____ lb. This is to certify that I have personally received the material described hereon as agent of the Department of Transportation and the quantity appears to be as stated on this ticket.

Tare _____ lb.

Net _____ lb.

SIGNATURE _____

Use Full Signatures - Not Initials Alone

WEIGHMAN _____ SIGNATURE - CHECKER _____

TIME WEIGHED _____ TIME RECEIVED _____

*Duplicate & Original delivered to Truck Driver by Weigher
Driver delivers Original to Field Checker
Driver retains Duplicate*

PCN: _____

PROJECT NO. _____ COUNTY _____

TYPE OF MATERIAL _____ DATE _____ 19____

SCALES LOCATED AT _____

MAINT. TCT NO. _____ ELECTRONIC SCALES (YES) (NO) SHEET _____ OF _____

[illegible]

*TOTAL WEIGHED _____ TONS

TOTAL NET PAY QUANTITY (TONS)

*I _____ (Plant Manager) (KYTC Employee) DO HEREBY CERTIFY THAT THE ABOVE QUANTITY OF MATERIAL WAS FOR THE SOLE USE AND BENEFIT OF THE COMMONWEALTH OF KENTUCKY.

PAY QUAN. COMPILED BY: _____ CHECKED BY: _____

APPROVED: _____

PROJECT ENGINEER

White - From Weighman to Project Engineer
Canary - From Weighman to Contractor
Pink - Retained by Weighman
Goldenrod - From Weighman to Vendor

NOTE: Each kind of material must be listed on separate sheets.